

CLAIMS

1. An immunogen for inducing an immune response to a desired antigen protein, the immunogen comprising:
 - 5 a fusion protein composed of one selected from the full-length and a part of the antigen protein and one selected from a folding factor and its subunit linked thereto via at least one peptide bond.
2. The immunogen as defined in claim 1,
 - 10 wherein the folding factor is a chaperonin consisting of a plurality of chaperonin subunits.
3. The immunogen as defined in claim 2,
 - 15 wherein at least two of the chaperonin subunits are serially linked to one another via peptide bonds.
4. The immunogen as defined in claim 2 or 3,
 - 20 wherein the antigen protein is linked to the N-terminus and/or the C-terminus of the chaperonin subunit.
5. The immunogen as defined in claim 3 or 4,
 - 25 wherein the antigen protein is linked between the chaperonin subunits.
6. The immunogen as defined in one of claims 2 to 5,
 - being provided with an amino acid sequence to be cleaved by a protease between the chaperonin subunit and the antigen protein.

7. The immunogen as defined in one of claims 3 to 6,
being provided with an amino acid sequence to be cleaved by a
protease between the chaperonin subunits.

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8. The immunogen as defined in one of claims 2 to 7,
wherein the chaperonin subunit is derived from one selected from a
group consisting of bacteria, archaea and eukaryotes.

10 9. The immunogen as defined in one of claims 2 to 8,
wherein the antigen protein is accommodated in a chaperonin ring
formed by the chaperonin subunits.

10. The immunogen as defined in claim 9,
15 wherein the chaperonin ring is consisting of 5 to 10 chaperonin
subunits.

11. The immunogen as defined in claim 9 or 10,
having two chaperonin rings non-covalently associated on each
20 other's ring plane or each other's side.

12. The immunogen as defined in claim 1,
wherein the folding factor is a foldase.

25 13. The immunogen as defined in claim 12,
wherein the antigen protein is linked to the N-terminus and/or the
C-terminus of the foldase.

14. The immunogen as defined in claim 12 or 13,
wherein the foldase is a PPIase.
- 5 15. The immunogen as defined in claim 14,
wherein the PPIase is derived from one selected from a group
consisting of *Escherichia coli* and archaea.
- 10 16. The immunogen as defined in one of claims 1 to 15,
wherein the antigen protein is serotonin receptor 5-HT1aR.
- 15 17. The immunogen as defined in claim 16,
wherein the fusion protein comprises either the full-length of
serotonin receptor 5-HT1aR or a partial protein consisting of 6 or more
amino acid residues thereof.
- 20 18. The immunogen as defined in one of claims 1 to 17,
being produced by transcription and translation of a fusion gene
comprising a gene encoding one selected from the full-length and a part of
the antigen protein and a gene encoding one selected from the folding factor
and its subunit.
- 25 19. The immunogen as defined in claim 18,
wherein the gene encoding a part of the antigen protein is a gene
encoding a partial protein consisting of 6 or more amino acid residues of the
antigen protein.

20. A composition for immunological use,
being prepared by mixing of the immunogen as defined in one of
claims 1 to 19 with an adjuvant.
- 5 21. A method of producing an antibody, the method comprising the
steps of:
immunizing an animal except human with the immunogen as
defined in one of claims 1 to 19, and
obtaining an antibody specific to the antigen protein from the
10 animal.
22. A method of producing an antibody, the method comprising the
steps of:
immunizing an animal except human with the composition as
defined in claim 20, and
obtaining an antibody specific to the antigen protein from the
15 animal.